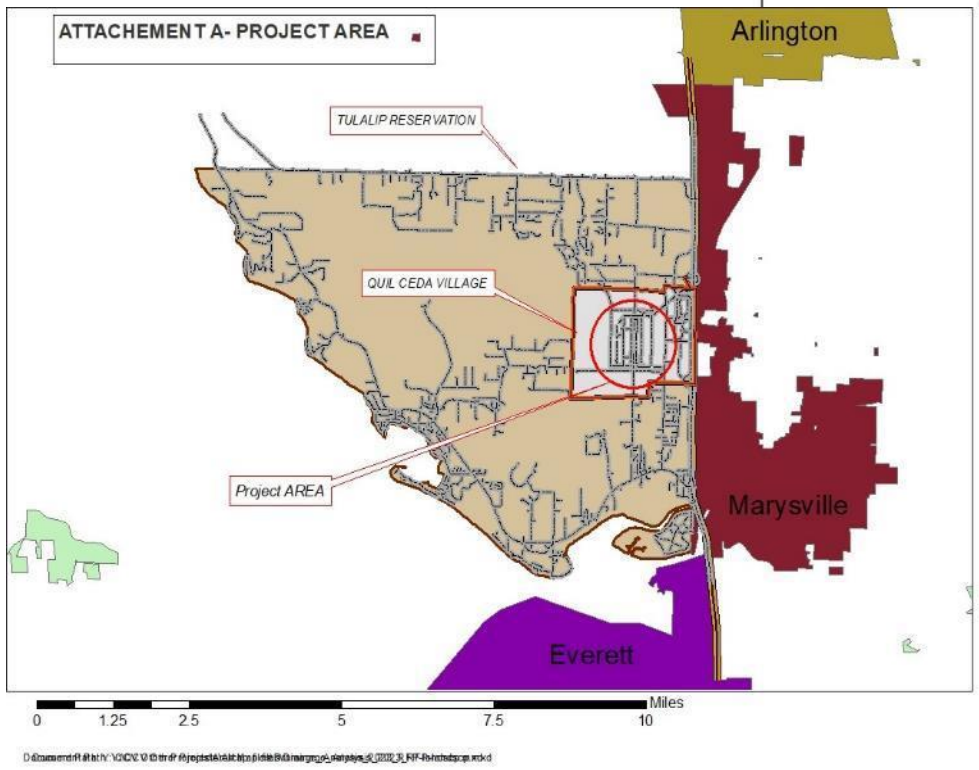
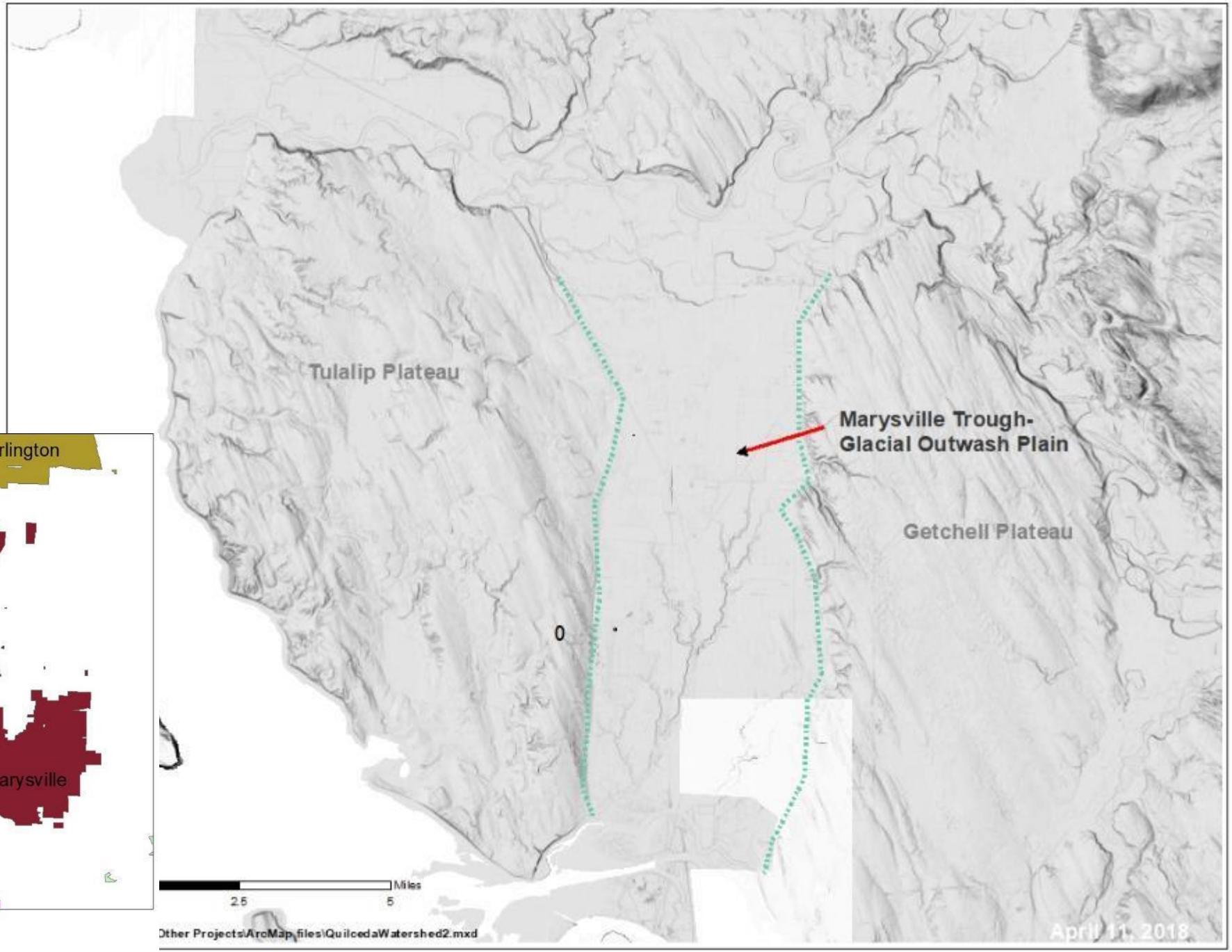
Restoring with Beaver

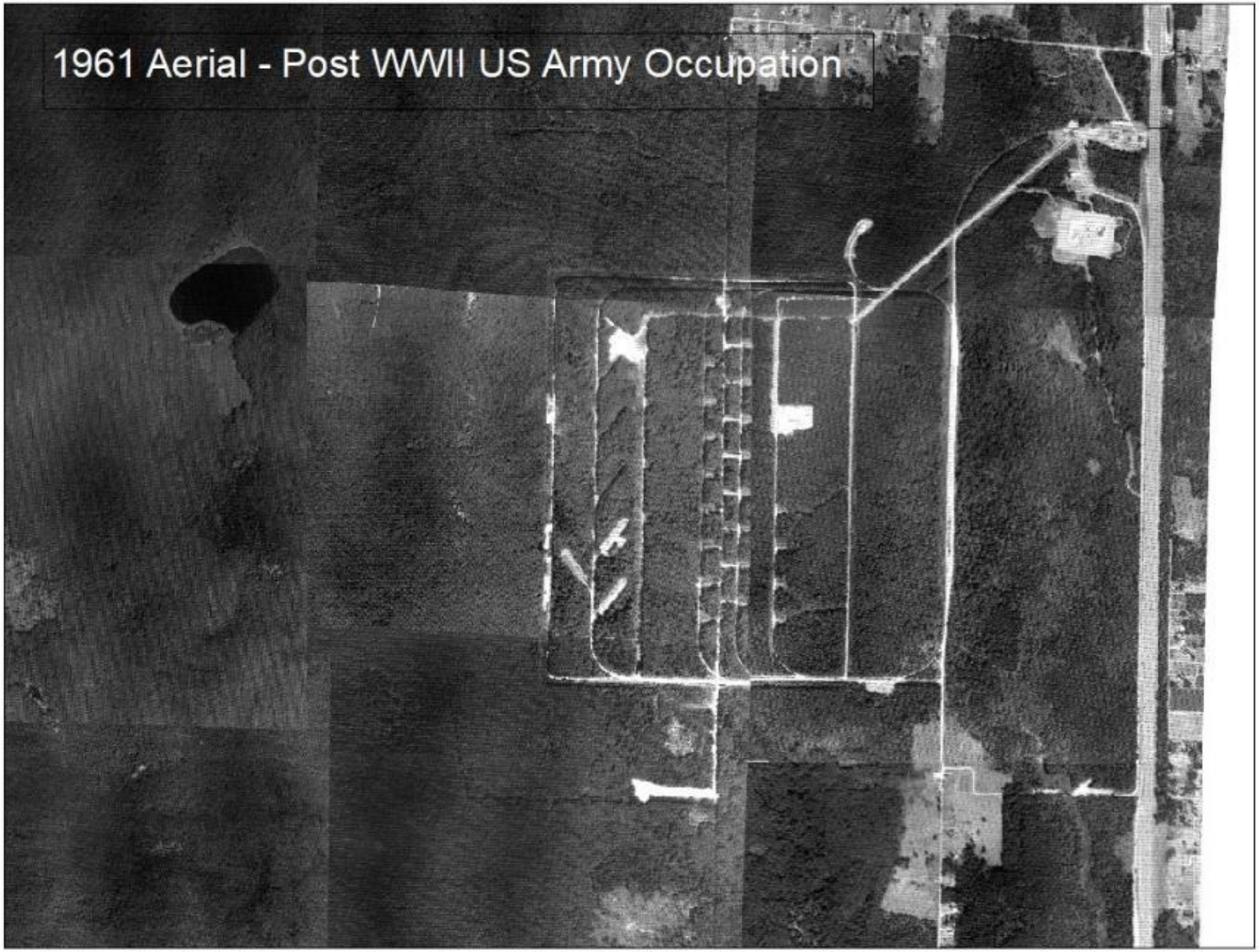
Year 5 monitoring of a stream restoration site

Marysville Trough

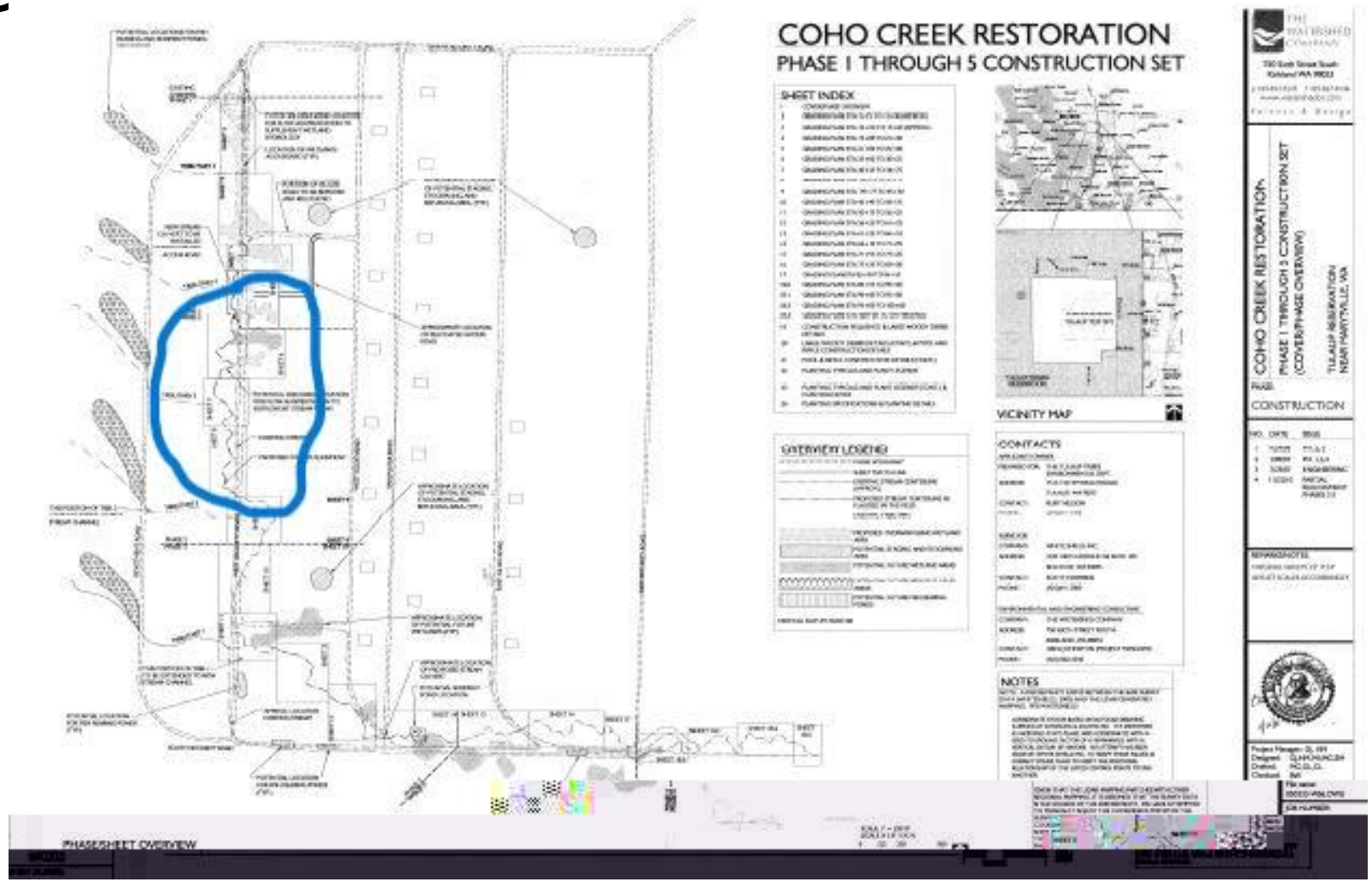


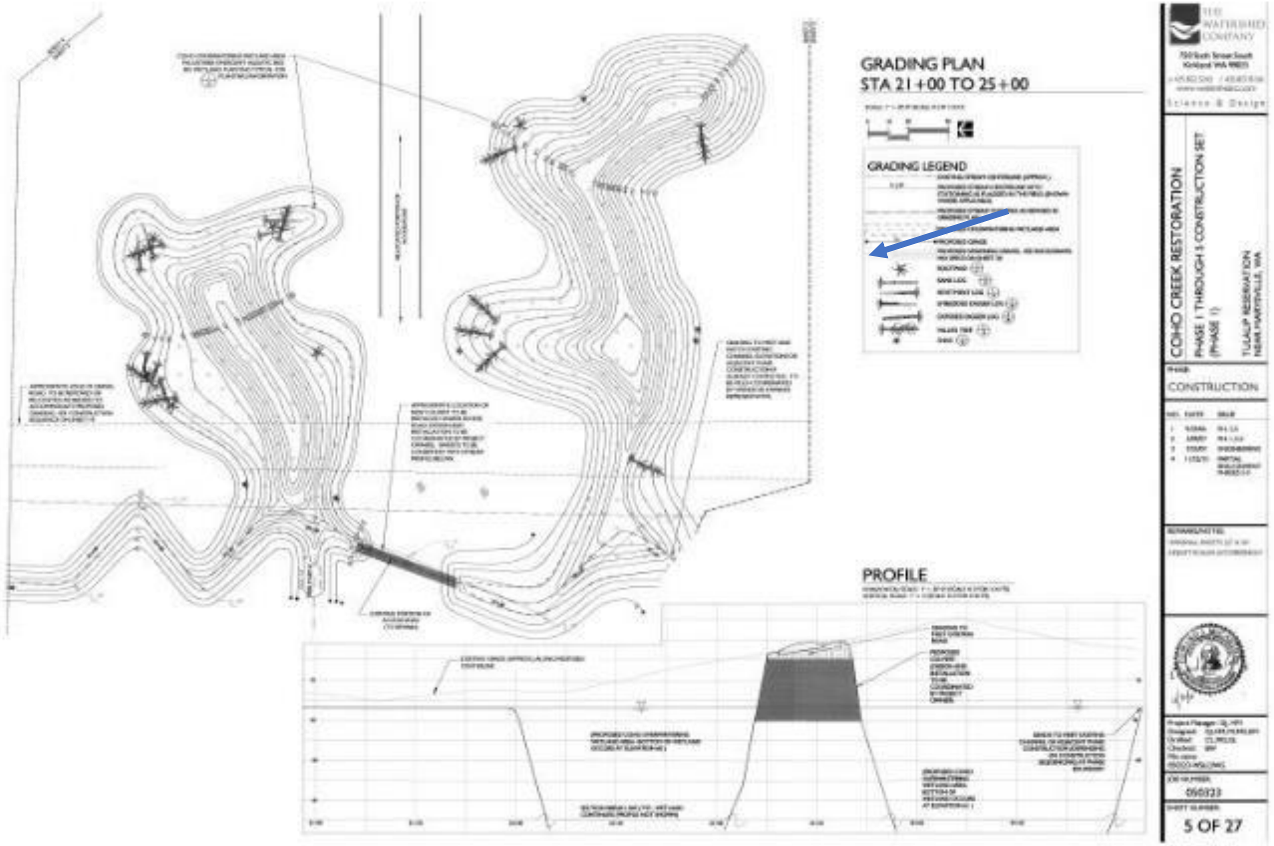


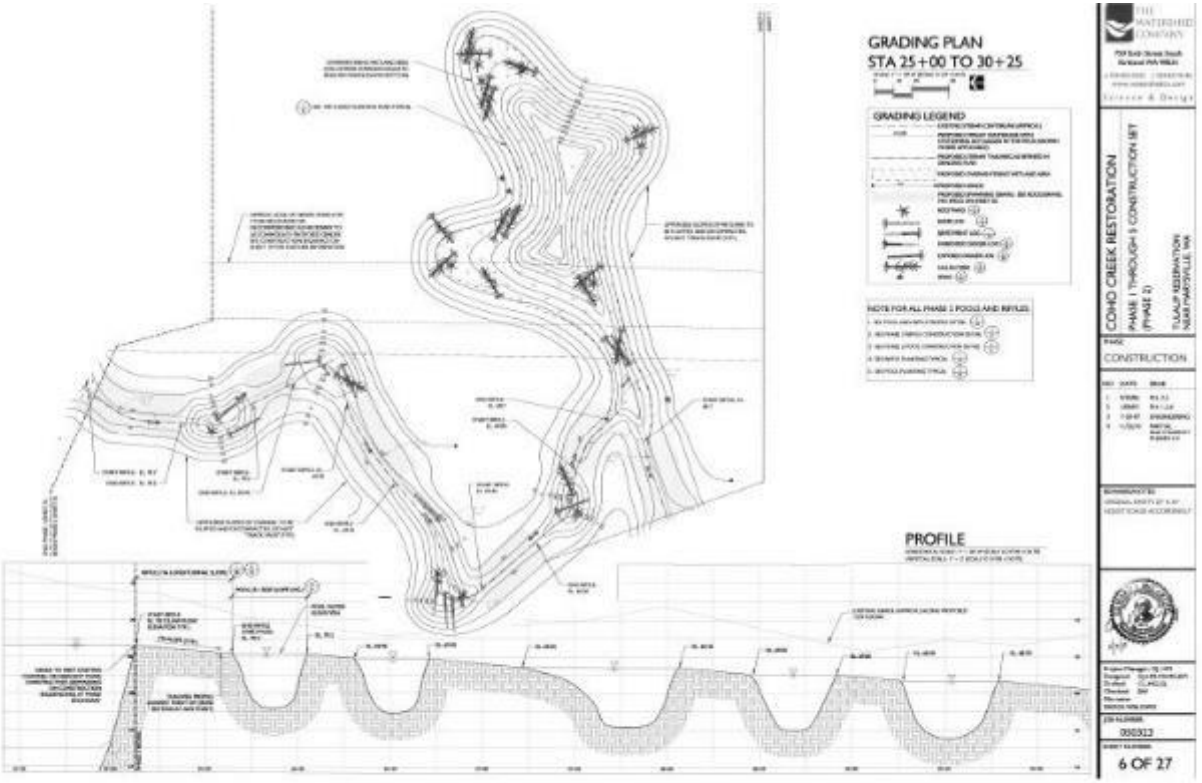
Boeing Site History



2007- Phase 1 Coho Creek Restoration Project

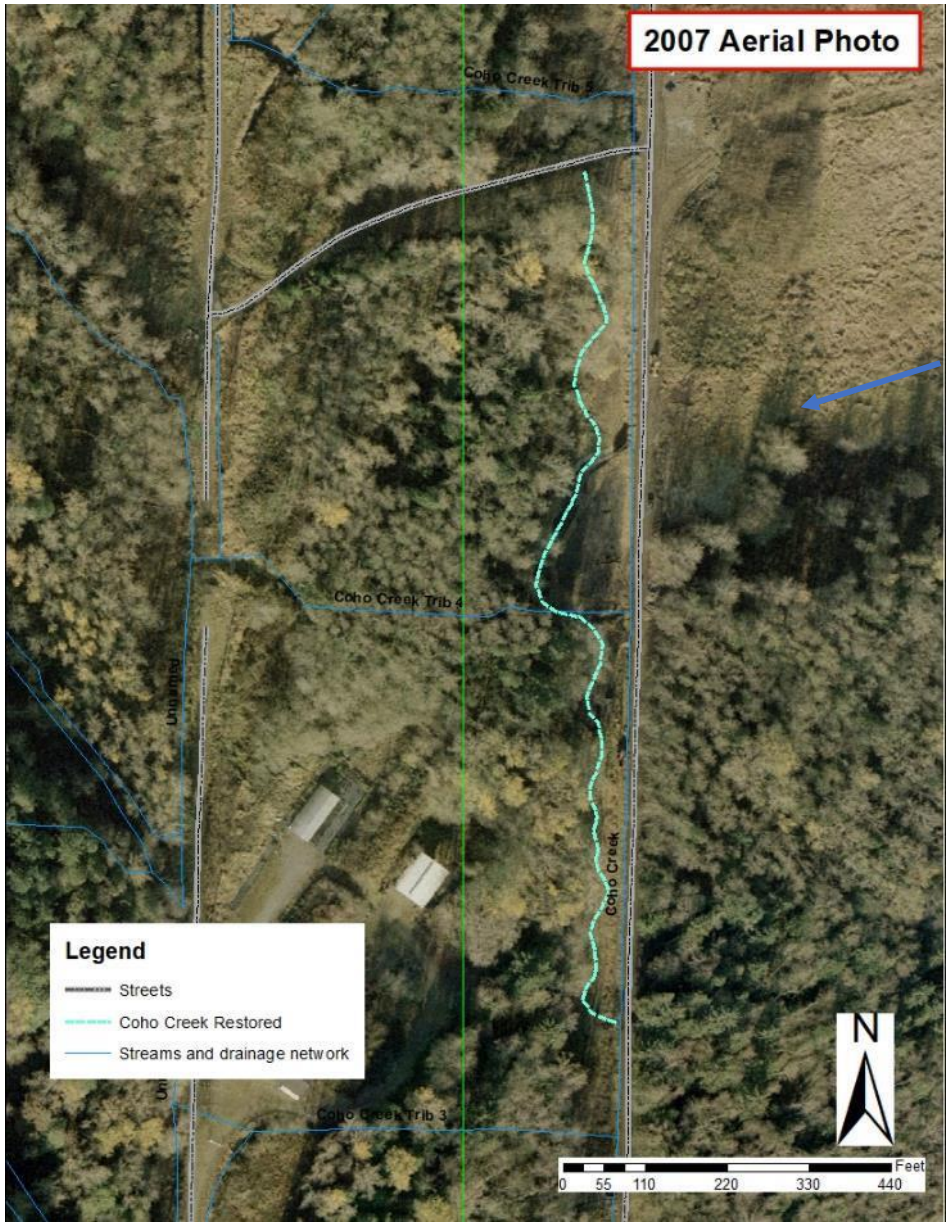


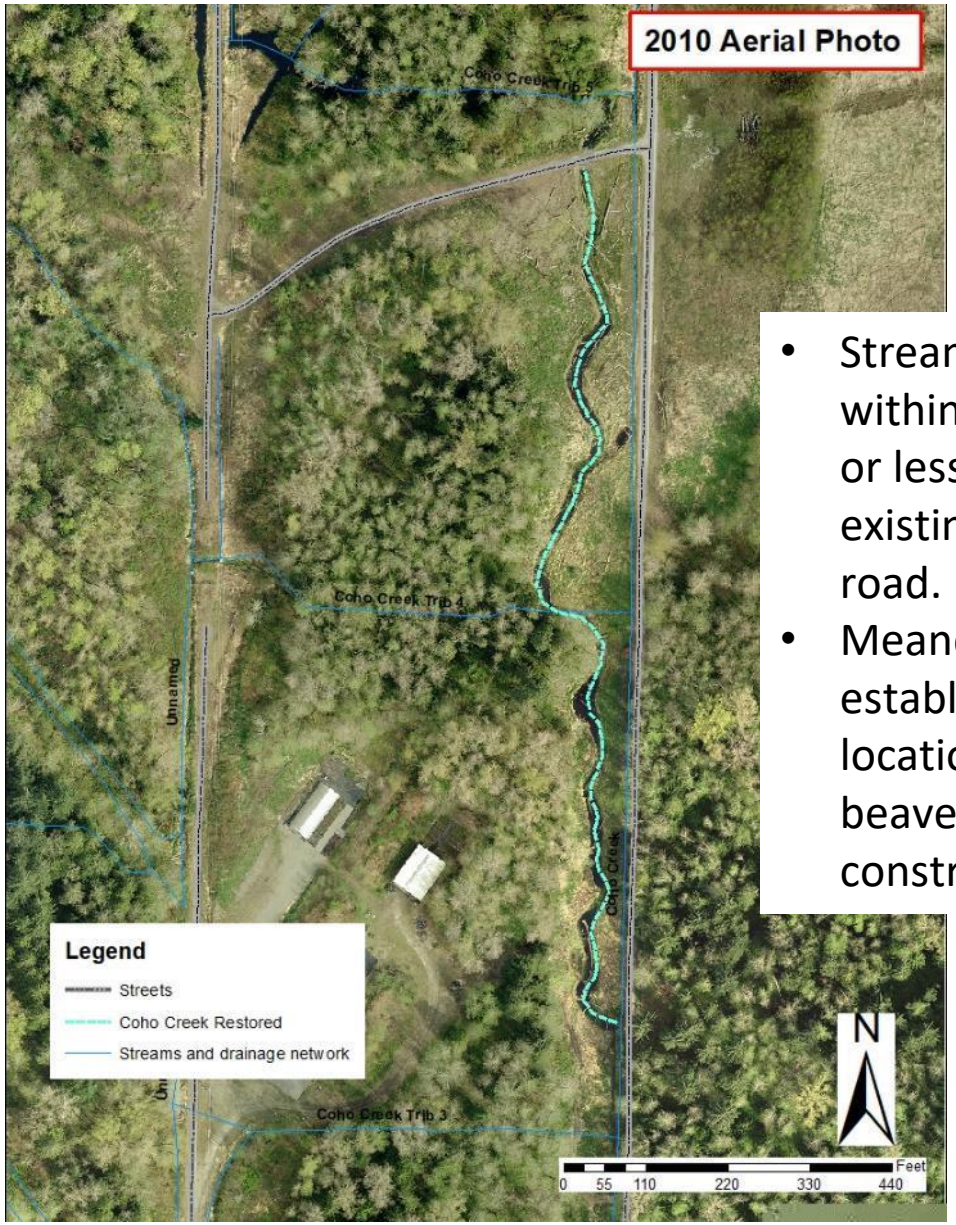

GRADING PLAN
STA 21+00 TO 25+00
GRADING LEGEND
PROFILE
COHO CREEK RESTORATION
CONSTRUCTION
5 OF 27


GRADING PLAN
STA 25+00 TO 30+25
GRADING LEGEND
PROFILE
COHO CREEK RESTORATION
CONSTRUCTION
6 OF 27

Restoration time line

- Original Restoration 2007-2008
  - A run of fish was re-established almost immediately.
  - Plantings of willows, red osier dogwood, western white pine, sitka spruce and alder.
  - Limited maintenance and mowing after 3 years
  - Beaver took most of willows and site became overgrown with reed Canarygrass.



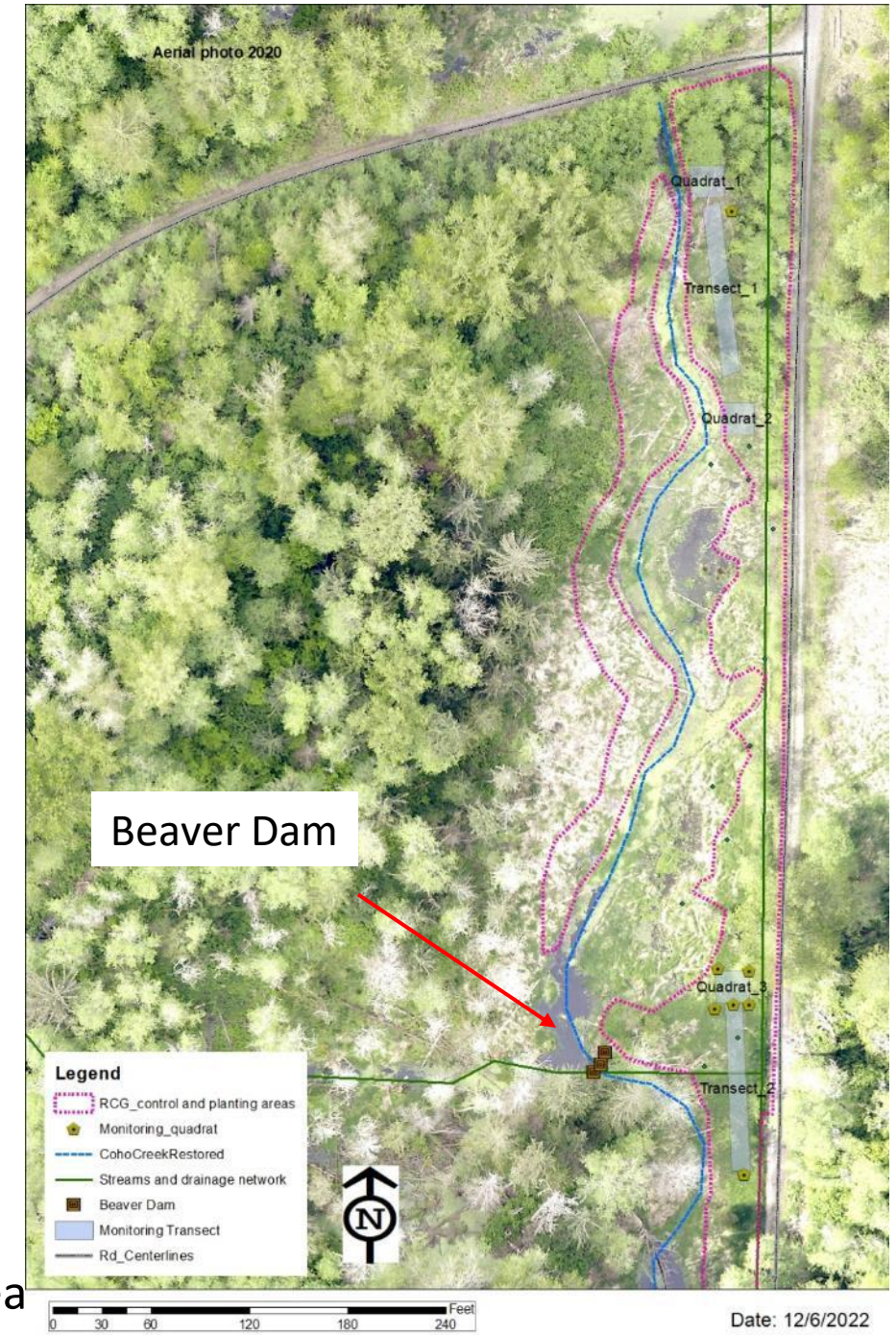


- Stream is restored within only 50 feet or less of the existing gravel road.
- Meanders established good locations for beaver dams to be constructed.

- 2018 – begin mowing and planting- Sitka spruce and western red cedar, western crabapple, and willows

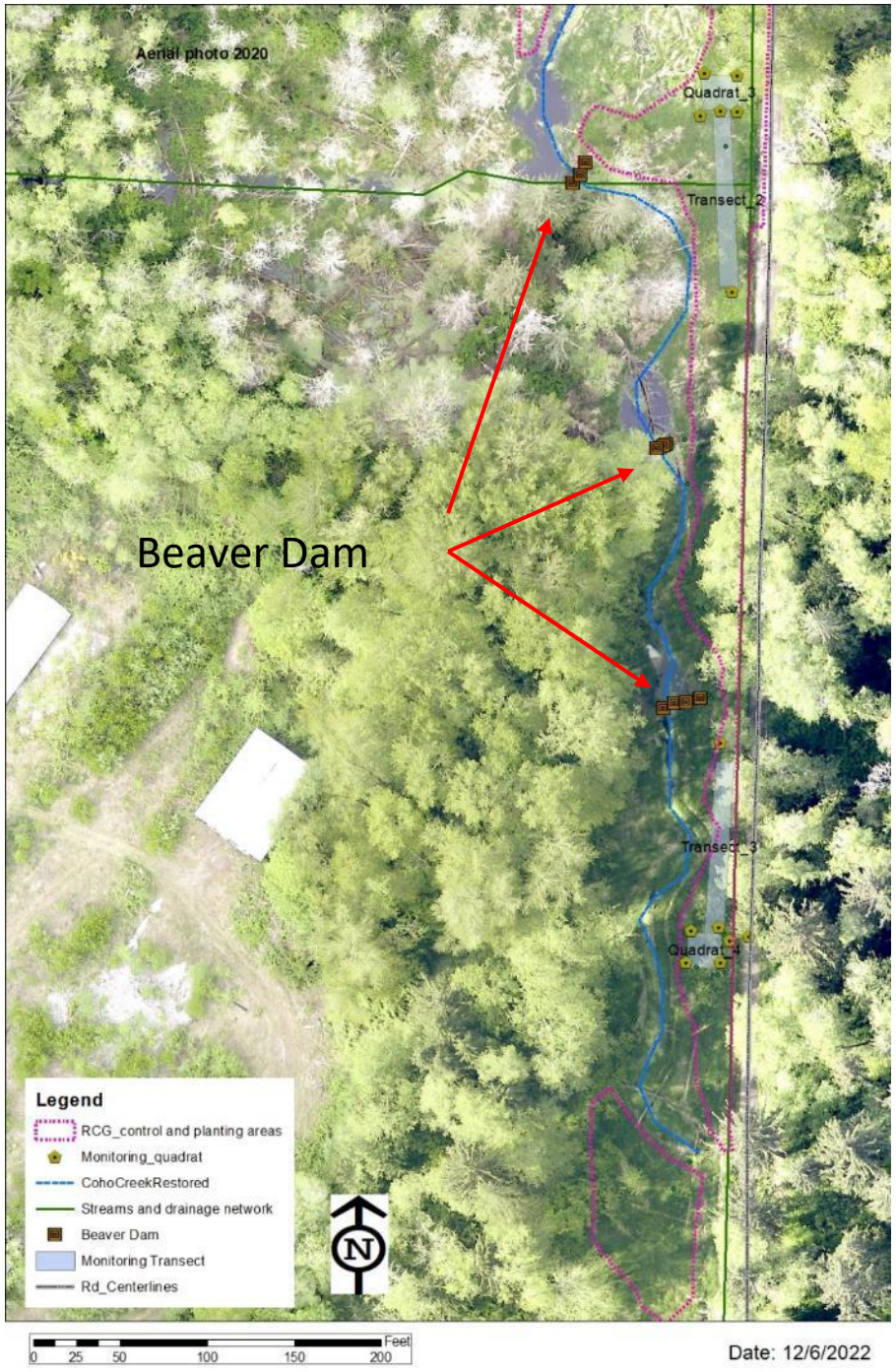
- Fall 2019 – Additional plantings

- Spring 2020-2024 – Additional plantings: Sitka spruce, western red cedar, red osier dogwood, twinberry, pacific ninebark, crabapple, wapato, sedges and rushes, and willows.



North end Restoration Area

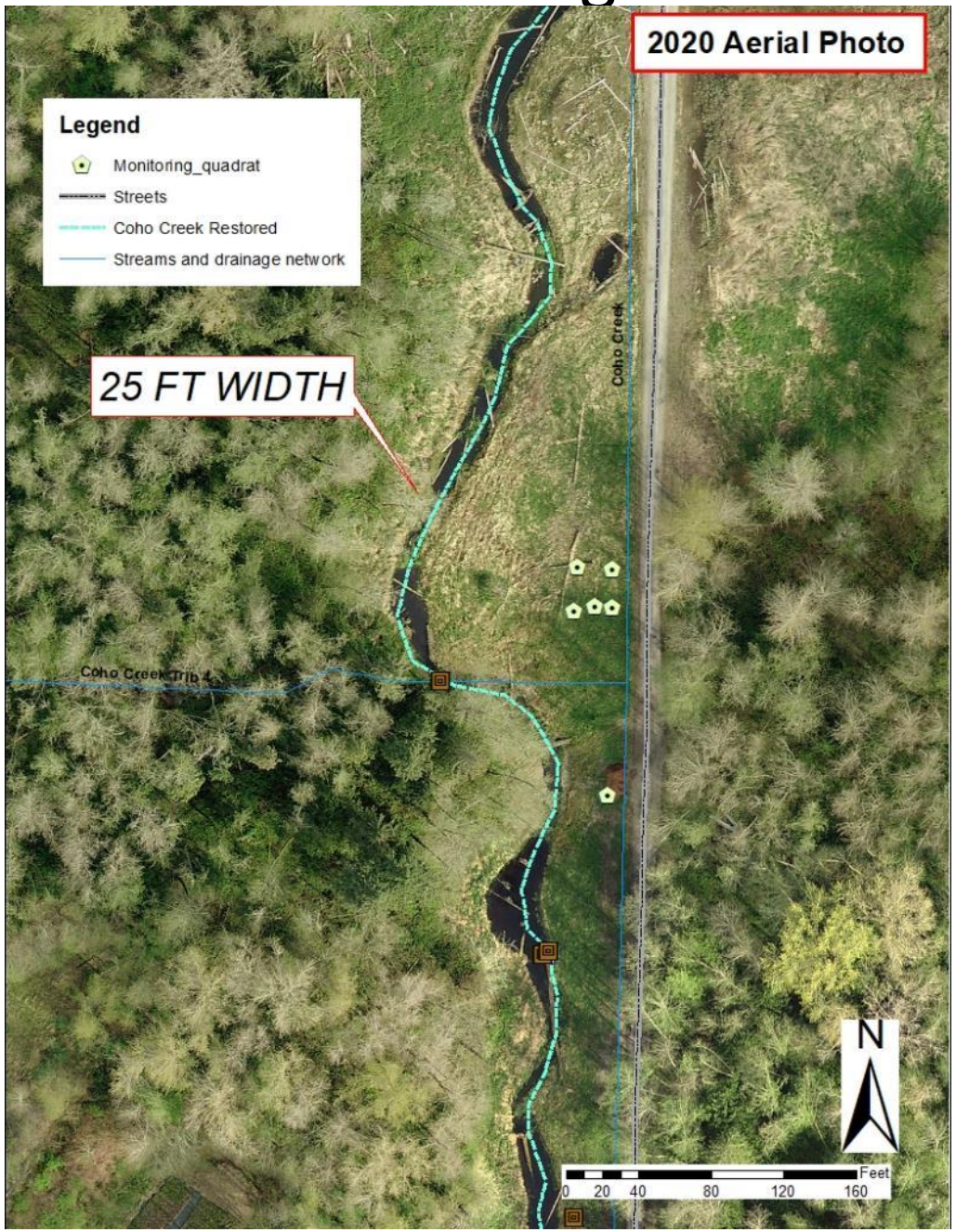
- Beaver dams originally blocked fish.

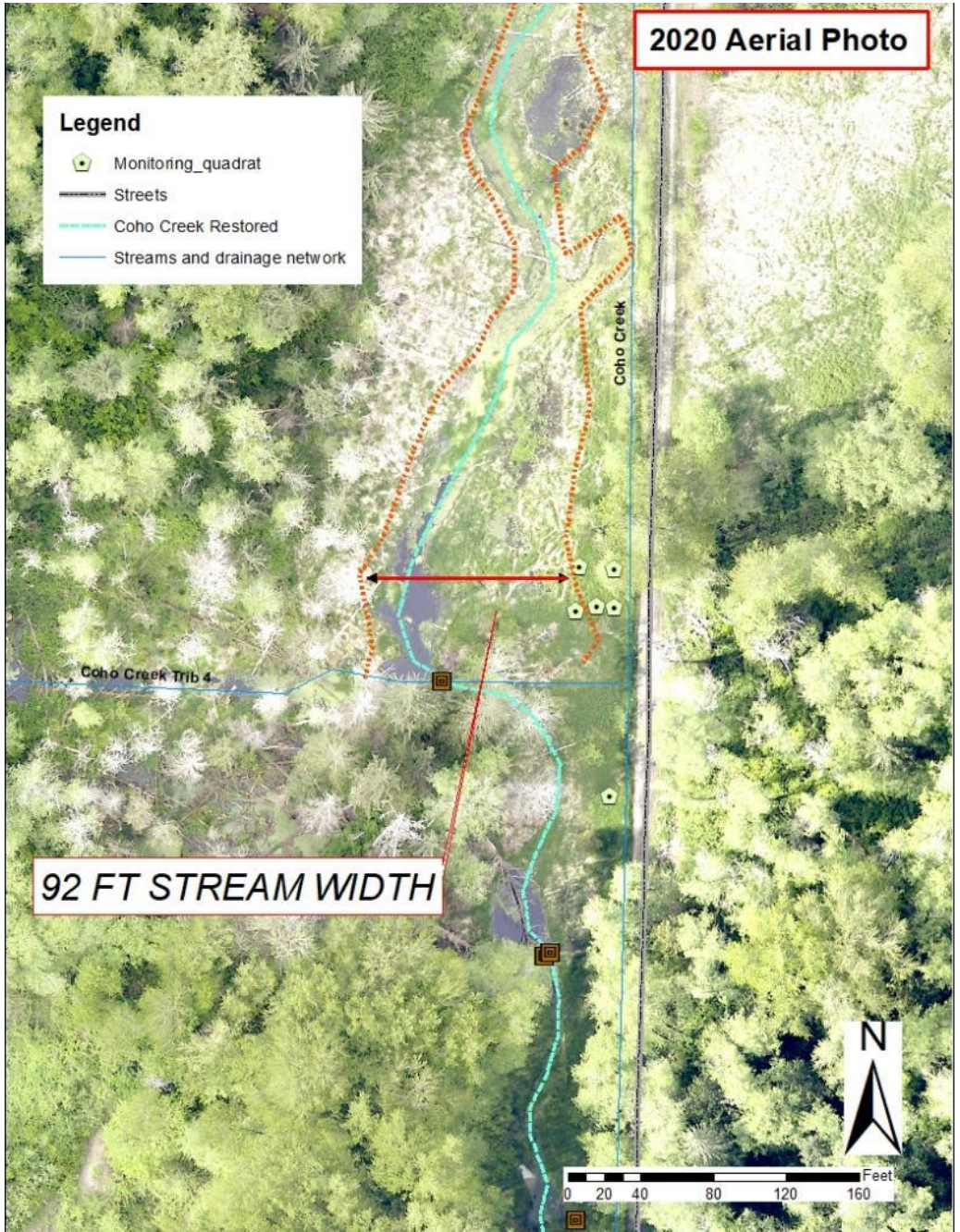


South end Restoration Area

Beaver Dams!

Dramatic changes in stream character





2020- Early spring

Dramatic changes in stream character

Dramatic changes in stream character

Flooding!

2022 Beaver Management Plan

Quilceda Village
Beaver Management Plan
June 4, 2021

Prepared by Allison Warner,

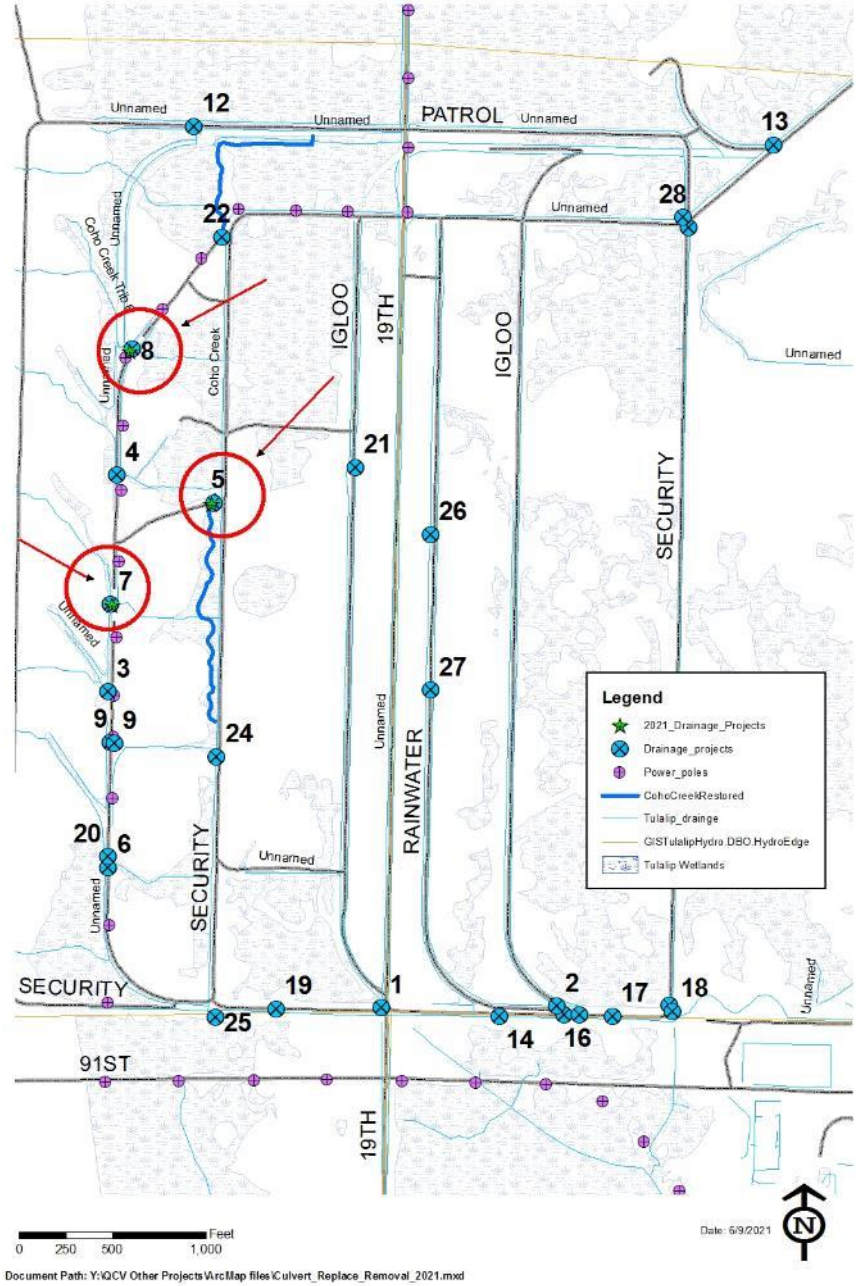
QCV Wetland Program Coordinator

2022 Beaver Management Plan

QUIL CEDA VILLAGE – COHO CREEK BEAVER MANAGEMENT PLAN

Contents

Culvert removals or replacements to improve fish passage and stop road flooding



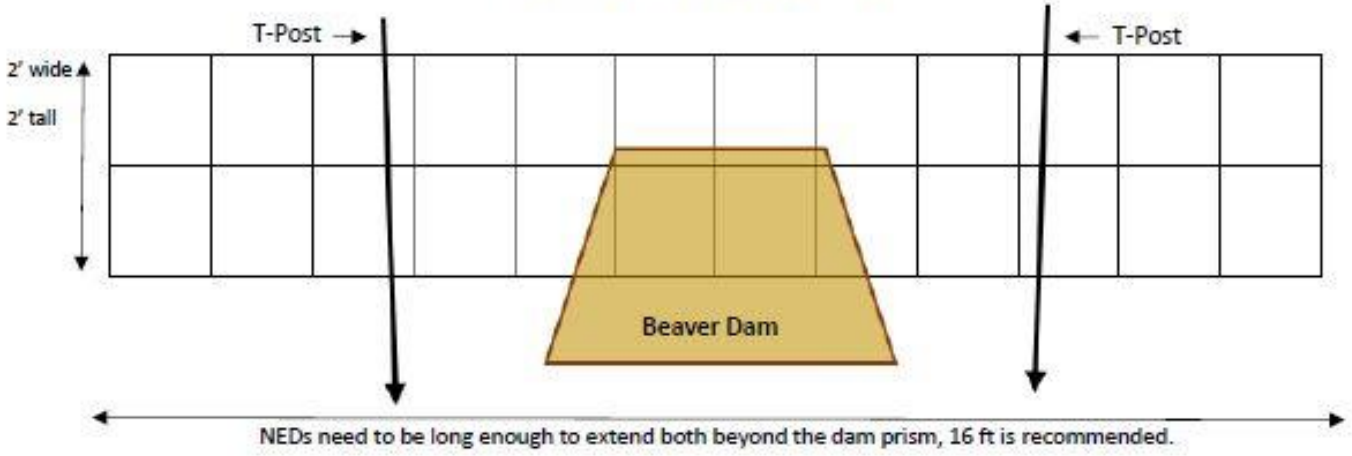
NEDS- Fish Passable Beaver Deceivers

NOTCH EXCLUSION DEVICE-NED

First prototype of NED 16' length x 2' wide, not enclosed

Newest prototype of NED 16' length x 2' wide x 2' height, enclosed

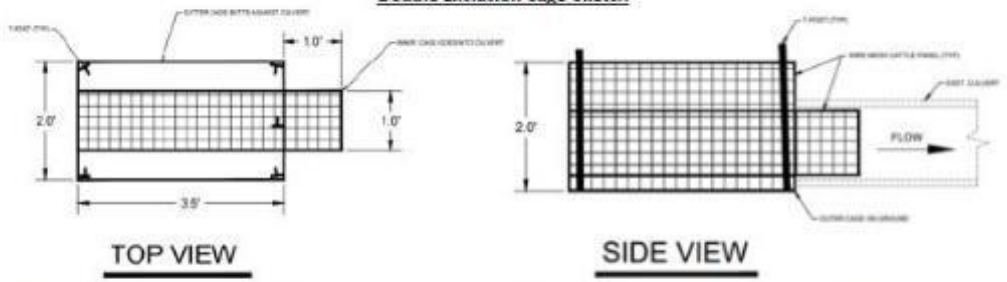
Notch Exclusion Device (NED)-sketch



Notch Exclusion Devices or NED's are constructed using 6"x 8" gap cattle panel which complies with WDFW guidelines for fish passage through the structure.

Double Exclusion Cage

Double Exclusion Cage-Sketch



Double Exclusion Cages are constructed using 6"x 8" gap cattle panel which complies with WDFW guidelines for fish passage through the structure. These devices are to be assembled to fit the site. These can be removed and moved elsewhere if needed. The inner cage is built to fit inside of the culvert, while the outer cage is larger, so it fits flush up against the culvert inlet.

Constructing Beaver Deceivers

Beavers Defeat NEDs!

Adaptive Management

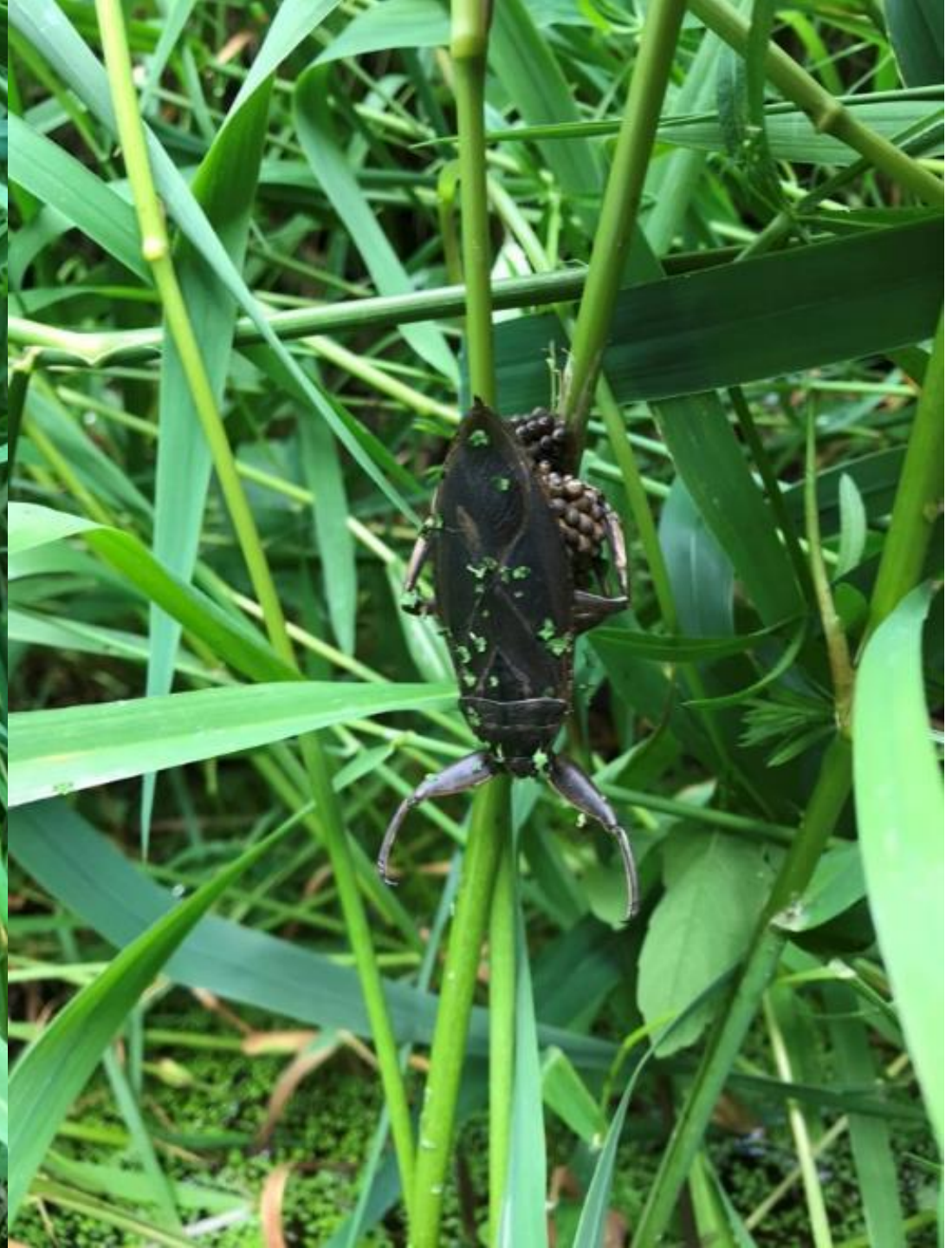
and Stewardship

Planting and More Planting

Spring 2020 Planting with Heritage High School

Fencing and More Fencing

Beaver have improved stream and habitat despite reducing planting area



Fish Passage Restored

March 2020- Vs Fall 2022- Transect 3

2022- VS 2023 Transect 3 Fall monitoring

2023 vs 2022- Fall monitoring

2024 vs 2022Transect 1 monitoring

Year 6- Starting to see canopy closure

Transect 3 –view center to W from road

Beaver stay active at the site

Beaver coppicing! Helps canopy closure!

Quadrat 3 View from SW corner to E

In Summary…

- Beaver are a great bonus for restoration sites
- Adjust planting plan for changed hydrologic conditions- and to reduce beaver browse- plan for successive planting years if possible to see how conditions evolve
- Protect large diameter mature trees in the vicinity!
- Allow some beaver browse on small diameter willow stems for coppicing
- Fencing needs to be adjusted as the willows and other trees grow

In Summary…

- PLAN FOR BEAVER at your restoration sites if you are working in a riparian area (or riparian adjacent wetland). There are new tools for predicting beaver and hydrologic changes at various locations on the stream

- Long term **stewardship** is needed- sites rarely achieve performance standards within 3 years or 5 years! And should have maintenance and monitoring since most sites aren't pristine and subject to weed invasions etc

- Agencies should be funding **long term maintenance and monitoring** for **RESTORATION** sites as well as mitigation sites- comply with the 2008 Mitigation Rule!

- If agencies aren't able to fund long term maintenance, should be a required match for restoration funds.